

This listing of claims replaces all prior versions of claims in the Application.

Listing of Claims

Claims 1–14. (Canceled)

Claim 15. (New) A method for producing an electronic device comprising the steps of:

a) disposing on a substrate surface a B-staged dielectric matrix composition comprising one or more dielectric matrix materials and a removable porogen;

b) curing the B-staged dielectric matrix composition to form a dielectric matrix material without substantially removing the porogen;

c) patterning the dielectric matrix material;

d) depositing a metal layer on the surface of the dielectric material; and then

e) subjecting the dielectric matrix material to heat and radiation to at least partially remove the porogen to form a porous dielectric material layer without substantially degrading the dielectric material.

Claim 16. (New) The method of claim 15 wherein the B-staged dielectric material is selected from one or more of organo polysilicas; carbides, oxides, nitrides and oxyfluorides of silicon, boron, or aluminum; benzocyclobutenes; poly(aryl esters); poly(ether ketones); polycarbonates; poly(arylene ethers); polyaromatic hydrocarbons; poly(perfluorinated hydrocarbons); polyimides; polybenzoxazoles and polycycloolefins.

Claim 17. (New) The method of claim 15 wherein the B-staged dielectric material is selected from alkyl silsesquioxanes; aryl silsesquioxanes; alkyl/aryl silsesquioxane mixtures; and mixtures of alkyl silsesquioxanes.

Claim 18. (New) The method of claim 15 wherein the metal layer is one or more of barrier layer, seed layer or aperture fill metal layer.

Claim 19. (New) The method of claim 15 wherein the removable porogen is substantially compatible with B-staged dielectric material.

Claim 20. (New) The method of claim 15 further comprising the step of planarizing the metal layer prior to at least partially removing the porogen.

Claim 21. (New) The method of claim 15 wherein the radiation is chosen from visible light, IR, microwave, UV, and electron beam.

Claim 22. (New) A method for producing an electronic device comprising the steps of:

a) disposing on a substrate surface a B-staged dielectric matrix composition comprising one or more dielectric matrix materials and a removable porogen;

b) curing the B-staged dielectric matrix composition to form a dielectric matrix material without substantially removing the porogen;

c) patterning the dielectric matrix material;

d) depositing at least one of a barrier layer or seed layer on the surface of the dielectric material;

e) depositing an aperture fill metal layer;

f) planarizing the aperture fill metal layer; and then

g) subjecting the dielectric matrix material to heat and radiation at least partially remove the porogen to form a porous dielectric material layer without substantially degrading the dielectric material.

Claim 23. (New) The method of claim 22 wherein the aperture fill metal layer comprises copper or copper alloy.

Claim 24. (New) The method of claim 22 wherein the radiation is chosen from visible light, IR, microwave, UV, and electron beam.